Sergei S Sheiko

List of Publications by Year
in descending order

111 papers	11,124 citations	41258 49 h-index	29081 104 g-index
113 all docs	113 docs citations	113 times ranked	8103 citing authors

#	Article	IF	Citations
1	Cylindrical molecular brushes: Synthesis, characterization, and properties. Progress in Polymer Science, 2008, 33, 759-785.	11.8	1,035
2	Stimuli-responsive molecular brushes. Progress in Polymer Science, 2010, 35, 24-44.	11.8	600
3	The Synthesis of Densely Grafted Copolymers by Atom Transfer Radical Polymerization. Macromolecules, 1998, 31, 9413-9415.	2.2	531
4	Weak Hydrogen Bonding Enables Hard, Strong, Tough, and Elastic Hydrogels. Advanced Materials, 2015, 27, 6899-6905.	11.1	434
5	Solvent-free, supersoft and superelastic bottlebrush melts and networks. Nature Materials, 2016, 15, 183-189.	13.3	428
6	Synthesis of Molecular Brushes with Block Copolymer Side Chains Using Atom Transfer Radical Polymerization. Macromolecules, 2001, 34, 4375-4383.	2.2	400
7	Visualization of MacromoleculesA First Step to Manipulation and Controlled Response. Chemical Reviews, 2001, 101, 4099-4124.	23.0	368
8	Chameleon-like elastomers with molecularly encoded strain-adaptive stiffening and coloration. Science, 2018, 359, 1509-1513.	6.0	345
9	Adsorption-induced scission of carbonâ€“carbon bonds. Nature, 2006, 440, 191-194.	13.7	341
10	Densely-Grafted and Double-Grafted PEO Brushes via ATRP. A Route to Soft Elastomers. Macromolecules, 2003, 36, 6746-6755.	2.2	322
11	Mimicking biological stressâ€“strain behaviour with synthetic elastomers. Nature, 2017, 549, 497-501.	13.7	286
12	Diblock Copolymer Micelles in a Dilute Solution. Macromolecules, 2005, 38, 5330-5351.	2.2	282
13	Molecular Bottlebrushes as Novel Materials. Biomacromolecules, 2019, 20, 27-54.	2.6	230
14	Effect of Initiation Conditions on the Uniformity of Three-Arm Star Molecular Brushes. Macromolecules, 2003, 36, 1843-1849.	2.2	219
15	Thermo-sensitive polymers in medicine: A review. European Polymer Journal, 2019, 117, 402-423.	2.6	206
16	Molecular structure of bottlebrush polymers in melts. Science Advances, 2016, 2, e1601478.	4.7	198
17	Single Molecule Rodâ^'Globule Phase Transition for Brush Molecules at a Flat Interface. Macromolecules, 2001, 34, 8354-8360.	2.2	196
18	Orthogonal Self-Assembly in Folding Block Copolymers. Journal of the American Chemical Society, 2013, 135, 501-510.	6.6	184

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19	Synthesis of Molecular Brushes with Gradient in Grafting Density by Atom Transfer Polymerization. Macromolecules, 2002, 35, 3387-3394.	2.2	183
20	Shapeshifting: Reversible Shape Memory in Semicrystalline Elastomers. Macromolecules, 2014, 47, 1768-1776.	2.2	171
21	Synthesis and Visualization of Densely Grafted Molecular Brushes with Crystallizable Poly(octadecyl) Tj ETQq1 1 0.784314 rgBT /Over	2.2	154
22	Bottlebrush Elastomers: A New Platform for Freestanding Electroactuation. Advanced Materials, 2017, 29, 1604209.	11.1	150
23	How dense are cylindrical brushes grafted from a multifunctional macroinitiator?. Polymer, 2004, 45, 8173-8179.	1.8	140
24	Architectural Code for Rubber Elasticity: From Supersoft to Superfirm Materials. Macromolecules, 2019, 52, 7531-7546.	2.2	137
25	Drug Combination Synergy in Worm-like Polymeric Micelles Improves Treatment Outcome for Small Cell and Non-Small Cell Lung Cancer. ACS Nano, 2018, 12, 2426-2439.	7.3	132
26	Combs and Bottlebrushes in a Melt. Macromolecules, 2017, 50, 3430-3437.	2.2	117
27	Measuring Molecular Weight by Atomic Force Microscopy. Journal of the American Chemical Society, 2003, 125, 6725-6728.	6.6	110
28	Tadpole Conformation of Gradient Polymer Brushes. Macromolecules, 2004, 37, 4235-4240.	2.2	110
29	Reversible shapeâ€shifting in polymeric materials. Journal of Polymer Science, Part B: Polymer Physics, 2016, 54, 1365-1380.	2.4	100
30	Tension Amplification in Molecular Brushes in Solutions and on Substrates. Journal of Physical Chemistry B, 2009, 113, 3750-3768.	1.2	96
31	Coreâ^'Shell Molecular Bottlebrushes with Helical Polypeptide Backbone: Synthesis, Characterization, and Solution Conformations. Macromolecules, 2011, 44, 1491-1499.	2.2	91
32	How Far Can We Push Polymer Architectures?. Journal of the American Chemical Society, 2013, 135, 11421-11424.	6.6	89
33	Hetero-Grafted Block Brushes with PCL and PBA Side Chains. Macromolecules, 2008, 41, 6073-6080.	2.2	87
34	Molecular Brushes with Spontaneous Gradient by Atom Transfer Radical Polymerization. Macromolecules, 2005, 38, 8264-8271.	2.2	86
35	Computer Simulations of Bottle Brushes: From Melts to Soft Networks. Macromolecules, 2015, 48, 5006-5015.	2.2	80
36	High Yield Synthesis of Molecular Brushes via ATRP in Miniemulsion. Macromolecules, 2007, 40, 6557-6563.	2.2	78

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37	Programming temporal shapeshifting. Nature Communications, 2016, 7, 12919.	5.8	72
38	Crystallization of Molecular Brushes with Block Copolymer Side Chains. Macromolecules, 2009, 42, 9008-9017.	2.2	70
39	Multiarm Molecular Brushes:â€‰ Effect of the Number of Arms on the Molecular Weight Polydispersity and Surface Ordering. Langmuir, 2004, 20, 6005-6011.	1.6	69
40	Monomolecular Films of Arborescent Graft Polystyrenes. Macromolecules, 1997, 30, 2343-2349.	2.2	67
41	Dynamics of Dual Networks: Strain Rate and Temperature Effects in Hydrogels with Reversible H-Bonds. Macromolecules, 2017, 50, 652-659.	2.2	66
42	Supersoft and Hyperelastic Polymer Networks with Brushlike Strands. Macromolecules, 2018, 51, 638-645.	2.2	64
43	Synthesis of Amphiphilic Poly(N-vinylpyrrolidone)-b-poly(vinyl acetate) Molecular Bottlebrushes. ACS Macro Letters, 2012, 1, 227-231.	2.3	62
44	Universality of the Entanglement Plateau Modulus of Comb and Bottlebrush Polymer Melts. Macromolecules, 2018, 51, 10028-10039.	2.2	61
45	Perfect mixing of immiscible macromolecules at fluid interfaces. Nature Materials, 2013, 12, 735-740.	13.3	60
46	Conformational Switching of Molecular Brushes in Response to the Energy of Interaction with the Substrateâ€. Journal of Physical Chemistry A, 2004, 108, 9682-9686.	1.1	59
47	â€œFatal Adsorptionâ€•of Brushlike Macromolecules:â€‰ High Sensitivity of Câ^'C Bond Cleavage Rates to Substrate Surface Energy. Journal of the American Chemical Society, 2008, 130, 4228-4229.	6.6	58
48	Effect of the Soluble Block Size on Spherical Diblock Copolymer Micelles. Macromolecules, 2008, 41, 6555-6563.	2.2	58
49	Bottlebrush Bridge between Soft Gels and Firm Tissues. ACS Central Science, 2020, 6, 413-419.	5.3	56
50	Advancing Reversible Shape Memory by Tuning the Polymer Network Architecture. Macromolecules, 2016, 49, 1383-1391.	2.2	55
51	Injectable bottlebrush hydrogels with tissue-mimetic mechanical properties. Science Advances, 2022, 8, eabm2469.	4.7	53
52	Coolingâ€Triggered Shapeshifting Hydrogels with Multiâ€Shape Memory Performance. Advanced Materials, 2018, 30, e1707461.	11.1	51
53	Universal Coatings Based on Zwitterionicâ€“Dopamine Copolymer Microgels. ACS Applied Materials & Interfaces, 2018, 10, 20869-20875.	4.0	49
54	Molecular Tensile Machines: Intrinsic Acceleration of Disulfide Reduction by Dithiothreitol. Journal of the American Chemical Society, 2011, 133, 17479-17484.	6.6	48

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55	Molecular Tensile Machines: Anti-Arrhenius Cleavage of Disulfide Bonds. Macromolecules, 2013, 46, 7196-7201.	2.2	48
56	Dynamic Optical Gratings Accessed by Reversible Shape Memory. ACS Applied Materials & Interfaces, 2015, 7, 14288-14293.	4.0	48
57	Bond Tension in Tethered Macromolecules. Macromolecules, 2011, 44, 4520-4529.	2.2	46
58	Real-Time Scanning Force Microscopy of Macromolecular Conformational Transitions. Macromolecular Rapid Communications, 2004, 25, 1703-1707.	2.0	45
59	Anti-Arrhenius cleavage of covalent bonds in bottlebrush macromolecules on substrate. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 9276-9280.	3.3	45
60	Comb and Bottlebrush Graft Copolymers in a Melt. Macromolecules, 2019, 52, 3942-3950.	2.2	41
61	Orthogonal Cationic and Radical RAFT Polymerizations to Prepare Bottlebrush Polymers. Angewandte Chemie - International Edition, 2020, 59, 7203-7208.	7.2	40
62	Synthesis and Arm Dissociation in Molecular Stars with a Spoked Wheel Core and Bottlebrush Arms. Journal of the American Chemical Society, 2014, 136, 12762-12770.	6.6	39
63	Bottlebrush-Guided Polymer Crystallization Resulting in Supersoft and Reversibly Moldable Physical Networks. Macromolecules, 2017, 50, 2103-2111.	2.2	38
64	Dynamics of Bottlebrush Networks. Macromolecules, 2016, 49, 8009-8017.	2.2	36
65	Synthesis and Characterization of Molecular Bottlebrushes Prepared by Iron-Based ATRP. Macromolecules, 2012, 45, 9243-9249.	2.2	35
66	Preparation of titania nanoparticles with tunable anisotropy and branched structures from coreâ€“shell molecular bottlebrushes. Polymer, 2016, 98, 481-486.	1.8	32
67	Strained Bottlebrushes in Super-Soft Physical Networks. ACS Macro Letters, 2019, 8, 530-534.	2.3	32
68	Microphase Segregation in the Melts of Bottlebrush Block Copolymers. Macromolecules, 2020, 53, 2582-2593.	2.2	32
69	Injectable non-leaching tissue-mimetic bottlebrush elastomers as an advanced platform for reconstructive surgery. Nature Communications, 2021, 12, 3961.	5.8	32
70	Molecular Bottlebrushes with Bimodal Length Distribution of Side Chains. Macromolecules, 2015, 48, 4813-4822.	2.2	31
71	Poly[N-(2-hydroxypropyl)methacrylamide] nanogels by RAFT polymerization in inverse emulsion. Polymer Chemistry, 2014, 5, 1711-1719.	1.9	30
72	Preparation of ZnO hybrid nanoparticles by ATRP. Polymer, 2016, 107, 492-502.	1.8	30

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73	Exploring Quality in Gradient Copolymers. Macromolecular Rapid Communications, 2014, 35, 133-140.	2.0	29
74	Nonlinear Elasticity and Swelling of Comb and Bottlebrush Networks. Macromolecules, 2019, 52, 5095-5101.	2.2	29
75	Flow-Enhanced Epitaxial Ordering of Brush-Like Macromolecules on Graphite. Langmuir, 2006, 22, 1254-1259.	1.6	28
76	Focusing bond tension in bottle-brush macromolecules during spreading. Journal of Materials Chemistry, 2011, 21, 8448.	6.7	28
77	Well-Defined Zwitterionic Microgels: Synthesis and Application as Acid-Resistant Microreactors. Macromolecules, 2016, 49, 7204-7210.	2.2	28
78	Solution and Melts of Barbwire Bottlebrushes: Hierarchical Structure and Scale-Dependent Elasticity. Macromolecules, 2019, 52, 1671-1684.	2.2	28
79	Tissueâ€Adaptive Materials with Independently Regulated Modulus and Transition Temperature. Advanced Materials, 2020, 32, e2005314.	11.1	27
80	The design of wrinkled microcapsules for enhancement of release rate. Journal of Colloid and Interface Science, 2016, 478, 296-302.	5.0	25
81	From Adhesion to Wetting: Contact Mechanics at the Surfaces of Super-Soft Brush-Like Elastomers. ACS Macro Letters, 2017, 6, 854-858.	2.3	24
82	Benefits of Catalyzed Radical Termination: High-Yield Synthesis of Polyacrylate Molecular Bottlebrushes without Gelation. Macromolecules, 2018, 51, 6218-6225.	2.2	24
83	To Mimic Mechanical Properties of the Skin by Inducing Oriented Nanofiber Microstructures in Bottlebrush Cellulose-graft-diblock Copolymer Elastomers. ACS Applied Materials & Interfaces, 2021, 13, 3278-3286.	4.0	24
84	Synthesis, Characterization, and AFM Studies of Dendronized Polyferrocenylsilanes. Macromolecules, 2006, 39, 7922-7930.	2.2	22
85	Vaporâ€induced spreading dynamics of adsorbed linear and brushâ€like macromolecules as observed by environmental SFM: Polymer chain statistics and scaling exponents. Journal of Polymer Science, Part B: Polymer Physics, 2007, 45, 2368-2379.	2.4	21
86	How To Measure Work of Adhesion and Surface Tension of Soft Polymeric Materials. Macromolecules, 2018, 51, 4059-4067.	2.2	21
87	High-Temperature Shape Memory Behavior of Novel All-Aromatic (AB)n-Multiblock Copoly(ester) Tj ETQq1 1 0.784314 rgBT /Overlock	2.2	20
88	A Thermodynamic Roadmap for the Grafting-through Polymerization of PDMS₁₁MA. ACS Macro Letters, 2020, 9, 1303-1309.	2.3	20
89	Understanding the Synthesis of Linearâ€“Bottlebrushâ€“Linear Block Copolymers: Toward Plastomers with Well-Defined Mechanical Properties. Macromolecules, 2020, 53, 8324-8332.	2.2	19
90	Tissue-Mimetic Dielectric Actuators: Free-Standing, Stable, and Solvent-Free. ACS Applied Polymer Materials, 2020, 2, 1741-1745.	2.0	19

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91	Molecularly thin films of metallodendrimers. Journal of Physical Organic Chemistry, 1998, 11, 540-545.	0.9	16
92	Shifting Electronic Structure by Inherent Tension in Molecular Bottlebrushes with Polythiophene Backbones. ACS Macro Letters, 2014, 3, 738-742.	2.3	16
93	Degradable celluloseâ€based polymer brushes with controlled grafting densities. Journal of Polymer Science Part A, 2019, 57, 2426-2435.	2.5	16
94	Brush Architecture and Network Elasticity: Path to the Design of Mechanically Diverse Elastomers. Macromolecules, 2022, 55, 2940-2951.	2.2	16
95	Independently Tuning Elastomer Softness and Firmness by Incorporating Side Chain Mixtures into Bottlebrush Network Strands. Macromolecules, 2020, 53, 9306-9312.	2.2	15
96	Molecular Mechanochemistry: Engineering and Implications of Inherently Strained Architectures. Topics in Current Chemistry, 2015, 369, 1-36.	4.0	14
97	Theory of Microphase Segregation in the Melts of Copolymers with Dendritically Branched, Bottlebrush, or Cycled Blocks. ACS Macro Letters, 2019, 8, 1075-1079.	2.3	14
98	Encoding tissue mechanics in silicone. Science Robotics, 2018, 3, .	9.9	12
99	Large Sequence-Defined Supramolecules Obtained by the DNA-Guided Assembly of Biohybrid Poly(phosphodiester)s. Macromolecules, 2021, 54, 3423-3429.	2.2	12
100	Investigating the Stressâ€“Strain Behavior in Ring-Opening Metathesis Polymerization-Based Brush Elastomers. Macromolecules, 2021, 54, 8365-8371.	2.2	12
101	Isothermal programming of triple shape memory. Polymer, 2015, 72, 464-470.	1.8	11
102	Poor Solvents Improve Yield of Grafting-Through Radical Polymerization of OEO₁₉MA. ACS Macro Letters, 2020, 9, 674-679.	2.3	10
103	Mechanically Diverse Gels with Equal Solvent Content. ACS Central Science, 2022, 8, 845-852.	5.3	10
104	Orthogonal Cationic and Radical RAFT Polymerizations to Prepare Bottlebrush Polymers. Angewandte Chemie, 2020, 132, 7270-7275.	1.6	9
105	Grafting Poly(OEGMA) Brushes from a Shape Memory Elastomer and Subsequent Wrinkling Behavior. Langmuir, 2015, 31, 5489-5494.	1.6	8
106	Synthesis, Structure, Hydrodynamics and Thermoresponsiveness of Graft Copolymer with Aromatic Polyester Backbone at Poly(2-isopropyl-2-oxazoline) Side Chains. Polymers, 2020, 12, 2643.	2.0	7
107	Regulating Tissue-Mimetic Mechanical Properties of Bottlebrush Elastomers by Magnetic Field. ACS Applied Materials & Interfaces, 2021, 13, 38783-38791.	4.0	6
108	Chemistry and Properties of Cross-Linked All-Aromatic Hyperbranched Polyaryletherketones. Macromolecules, 2022, 55, 100-112.	2.2	5

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109	Molecular dynamics simulations of bottlebrush macromolecules in two dimensional polymeric melts under flow conditions. Soft Matter, 2011, 7, 2805.	1.2	3
110	Computationally Driven Design of Soft Materials with Tissue-like Mechanical Properties. ACS Symposium Series, 2018, , 33-50.	0.5	1
111	Theory of Yâ€•and Combâ€Shaped Polymer Brushes: The Parabolic Potential Framework. Macromolecular Theory and Simulations, 0, , 2100037.	0.6	0